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AUTHOR McIsaac, Marina Stock
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ABSTRACT

Distance educators, particularly those in developing countries, are facing the implementation of massive education programs with little research to guide them. Some developing countries have used established programs from other countries as models to provide low-cost instruction for basic literacy and job training; however, in many cases, they are finding it difficult to adapt programs designed to meet the needs of a different culture. The lack of appropriate research poses a twofold problem. First, how can original, high quality research be done given the economic, political, and social constraints which are often present in developing countries? Second, how can relevant research which has already been conducted be located and evaluated? Although distance education research is reported in journals, at conferences, in government reports, and in newsletters, such information is difficult to locate and to interpret due to the lack of any effort to centralize the data. A project has been undertaken at Arizona State University to locate and analyze significant existing research on distance education and to synthesize the results using meta-analysis. A meta-analytic model using HyperCard technology has been designed for this purpose. To date, two major areas of inquiry have been identified: (1) instruction, with the sub-categories learning, attitudes, and attrition; and (2) administration, with the sub-categories cost-effectiveness and courseware design. It is hoped that this quantitative synthesis of research, by identifying which interventions are successful, will provide the information international distance educators need to develop new strategies for their own programs. (13 references) (GL)

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PROBLEMS AFFECTING EVALUATION OF DISTANCE EDUCATION IN DEVELOPING COUNTRIES

Dr. Marina Stock McIsaac
Educational Media and Computers
Arizona State University
Tempe, Arizona

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ABSTRACT

This paper examines problems affecting evaluation of distance education in developing countries. Evaluation here refers to both original research studies and reports of research studies conducted by others in distance education. Problems affecting original research are addressed in terms of economic, political and social issues. The problems connected with locating existing research studies are examined and one solution, a meta-analysis for synthesizing the results of research studies, is discussed.

BACKGROUND

In the past ten years, record numbers of students in developing countries have gained access to higher education through distance education programs (Rumble & Harry, 1982). Distance education, in which the instructor is removed by time and place from the student, offers the promise of serving the needs of the world's growing population without the massive expense of constructing additional classrooms. Such programs rely on technologies which are either in place or are being considered for their cost-effectiveness. Distance education programs are particularly beneficial for the many people who are not financially or physically able to attend traditional classes.

During the past forty years the world population has doubled to over five billion people, most of whom want to be literate and want greater educational opportunities for themselves and their children. The majority of this expanding population is in Asia which faces massive problems of poverty, illiteracy and disease. In most developing countries, such as Bangladesh, distance education offers the promise of a system of information distribution through which new ideas, attitudes and understanding might begin to "ooze through the layers of the disadvantaged environments" (Shah, 1989, p. 9). Drawing upon the well known model of the British Open University, countries such as Pakistan, India, China, and Turkey have combined modern methods of teaching with

emerging technologies in order to provide low-cost instruction for basic literacy and job training (McIsaac, Murphy & Demiray, 1988).

THE PROBLEM

Interest in the field of distance learning is accelerating rapidly with the development of new communication technologies. In addition, many economically developing countries have embarked upon distance education programs by adopting existing models and course development strategies from North America, Australia, Great Britain, and Europe. However, in many cases, developing nations that are attempting to apply established programs from other countries find it difficult to adapt programs that were designed to meet the needs of a different culture.

Distance educators, particularly those in developing countries, are facing the implementation of massive education programs with little research to guide them. Because of fewer resources in these countries, the lack of appropriate research poses a twofold problem. First, how can original, high quality research be done given the economic, political and social constraints which are often present in developing countries? Second, how can relevant research which has already been conducted be located and evaluated?

CONDUCTING ORIGINAL RESEARCH

Many developing countries have relied on researchers from such organizations as the Council of Europe, the World Bank, and the Agency for Instructional Development to develop guidelines for the implementation of distance education projects. In recent years, however, these countries have emphasized the need to have their own local, qualified, professionals provide such expertise where possible. In most developing countries, serious and

dedicated students are sent abroad to acquire the expertise necessary to become leaders and decision makers in their own countries. Often foreigners who arrive in a country to conduct research are treated with skepticism (Chesley, 1988). Whether the expert is foreign or local, there are certain problems in conducting original research in developing countries. These are best considered from three perspectives: economic, political and social.

ECONOMIC. The most important consideration for the majority of developing countries is economic independence. It is in many of the economically developing countries that the largest distance learning projects are undertaken. A top educational priority for many such countries is to improve the cost effectiveness of education and to provide training and jobs for the general population. The lack of financial resources available for conducting research, particularly prior to embarking on a massive distance education plan, is a common problem. In many cases investing money in research is perceived to be unnecessary and a drain from areas in which the money is needed. Time is an additional problem, since programs are often mandated with very little start-up time. In the interest of expedience, an existing distance learning program from another country may be used and revised but many times this does not adequately answer the needs of the specific population.

One solution to the lack of adequate research available locally has traditionally been the donation of time and expertise by international organizations to help in developing project goals and objectives. The criticism of this approach is that visiting experts seldom have adequate time to become completely familiar with the economic, social and political factors influencing the success of the project. A second, and more appropriate solution, has been to train local experts to research, design and implement sound distance learning programs based on the needs of the particular economy (Tekin & Demiray,

1989: Shah, 1989). Developing nations prefer to train their own experts and direct their own projects. This preference for locally initiated and conducted research can be seen by examining bibliographies and references.

POLITICAL. One goal of education, particularly in developing countries, is to support the political organization of the country and to develop good citizens. Research projects which endorse this priority will have greater chance for success. National political philosophies and priorities are found reflected in the diversity of distance education programs around the world. These programs conform to prevailing political and economic values.

In China, for example, the objectives of distance education are to meet the needs of the developing economy and to assist in the national modernization program, part of a massive catch-up effort (Jianshu, 1988). Thailand, noted for its successful distance education program at Sukhothai Thammathirat Open University (STOU), responds to the national priority of preserving and developing local culture by producing high quality text books in the Thai language. In Turkey, the directive for Turkish higher education expressed in the Higher Education Act of 1981 was a reform measure legislated as a reaction to the political turmoil and civil disturbances which had shaken the Turkish government in the 1970s. This political situation was reflected on university campuses to the point that they were the scene of fighting and even gun battles. The establishment of the distance education program at Anadolu University is an answer to that political directive (McIsaac & Murphy, 1988). Researchers, whether local or foreign , must be sensitive to a country's political environment if their work is to be seriously considered, implemented and widely distributed.

SOCIAL. Researchers and distance learning administrators need to analyze the social conventions of a country and incorporate those conventions

into any research program before it can be successful. Such social conventions as extended hospitality, differing perceptions of time and the perceived importance of the project can all affect the credibility of the research and, ultimately, its success. In particular, the social classes and roles of women in society must be considered when making recommendations for distance education programs (McIsaac & Koymen, 1988).

Data collection which is interpreted as being aggressive or socially intrusive will not be welcome (Chesley, 1988). Local researchers generally have fewer problems overcoming social barriers. However, there is frequently the problem of finding locals who are qualified researchers. In many cases local researchers have been educated abroad, but once they return home they have little opportunity to use and update their skills.

Economic, political and social pressures all create problems in conducting original research in developing countries. By attending to some of the mores sensitive issues, researchers can conduct high quality studies which will benefit the field of distance education. However if economic, political or social factors prevent conducting original research, existing research can be most beneficial in providing comparative data in the areas of learning gains, course design and cost effectiveness.

EVALUATING EXISTING RESEARCH

Locating and evaluating existing research is not without its problems. Recently, more than 700 delegates participated in the 14th World Conference of the International Council for Distance Education, held in Oslo in August 1988. During that conference, major presentations and research reports from over 50 countries were added to the growing body of research in distance education (ICDE, 1988). The increasing number of research articles arriving at the United

Nations University International Documentation Centre (Harry, 1988), the recent First American Symposium on Research in Distance Education and the creation in 1987 of the American Journal of Distance Education (Moore, 1987,1988) all reflect the proliferation of documentation and research in this area.

Although research is reported in three or four major journals devoted to the literature in distance education, there has been little effort to centralize research findings. Due to the nature of the endeavor, descriptions of programs, surveys, and experimental studies may be reported at conferences, in government reports, in journals, and in newsletters. Such information is difficult to locate and interpret.

META-ANALYSIS. In an effort to locate and analyze significant existing research, we at Arizona State University have begun a project to examine the body of accumulated research concerned with distance education, and to synthesize the results using meta-analysis. For our study, a meta-analytic model is being designed and a sample of 62 research studies in distance education has been selected for preliminary evaluation. Meta-analysis is a technique which quantitatively synthesizes experimental and quasi-experimental research by transforming data to standard scores and reporting effect sizes (Glass, McGaw & Smith, 1981). For this project, research studies which reported non-experimental designs were set aside to be treated descriptively in order to provide a well-rounded picture of what research is saying about distance teaching and learning. The two objectives of the study were 1) to identify research categories which occur in the literature, and 2) to design a model for the data analysis.

Categories identified. Seven resources were manually searched for quantitative and qualitative research studies in distance education reported during the two years 1987-89. The sources included ERIC Abstracts, The

International Documentation Center Abstracts, The American Journal of Distance Education, The Canadian Journal of Educational Communication, Distance Education, Educational Researcher and the International Council for Distance Education Bulletin . The searches yielded 62 empirical studies which met the criteria established. These were entered into the database. Bibliographies of the previously mentioned studies are currently being searched as well as the American Symposium on Distance Education, Dissertation Abstracts, and Developing Distance Education.

Analysis of the articles revealed two major areas of inquiry with sub-categories in each area. The two major areas were Instruction and Administration. Sub-categories under Instruction included studies which evaluated LEARNING, ATTITUDES, and ATTRITION. Sub-categories under Administration included studies of COST-EFFECTIVENESS and COURSE DESIGN. The largest category of research, LEARNING, reported performance gains, learning styles, learning format, and age and gender differences. The second area, ATTITUDES, reported attitudes and motivation of teachers and students by age and gender. The third sub-category, ATTRITION, included demographics of drop-outs or early-leavers, and provided general student characteristics. Studies under Administration reported in the areas of COST-EFFECTIVENESS, both operating and start-up costs, and COURSEWARE DESIGN, which evaluated the use of print and non-print materials for instruction. Of the 62 articles, approximately half met the criteria for meta-analysis. The remaining studies will be evaluated descriptively to provide additional substantive information about programs and course design.

The second objective of this pilot phase of the project was to design the database and apply a meta-analytic model to one of the identified research

categories. In the future, data will be collected and meta-analyses applied to the other identified research areas.

Data analysis model designed. The accumulation of research in education offers a challenge to the researcher to synthesize and interpret conflicting results. The systematic approach offered by meta-analysis has been popularized by Glass et al. (1981) and offers a rigorous approach to standardizing research findings. The recently developed Apple™ Computer Hypercard™ program offers a user friendly database for conducting the analysis. In this case, the program Hypercard™ was used to automate many of the routine features of the meta-analysis. Hypercard ™ serves three key features in this analysis. First, it provides the format for a database of the surveyed articles. This includes important citation information such as author, title, journal and publisher as well as subject descriptors. Second, each reference is connected to an abstract. Third, each reference is also tied to a stack in which results of the study are reported. Stacks, or series of cards, are being developed to standardize the input of research to allow the researchers to view a concise, clearly articulated summary of the research findings. A complete automation of the computations required to standardize scores for the meta-analysis is currently being developed as an integral part of the results stack.

The type of organization offered by Hypercard™ has many advantages for the researcher. By organizing the studies into information fields, i.e., author, title, etc., it is possible to search or sort by key categories. Easy search of key words is possible within any of the fields, the abstract, or the results. These features can become powerful tools for the scholar.

In the next step, conducting the meta-analysis, the following procedures are used. First, samples are drawn from the available population. The list of

sources appears above. Second, information is coded to identify the research categories listed above. Third, statistical computations must be applied to standardize scores and make meaningful comparisons. Results of each study in the form of T- tests, F- tests, Chi Square, correlations and analysis of variance are weighted according to their effect sizes and whether they are truly experimental, quasi-experimental or uncontrolled. The transformation of these statistics results in a common unit or Product Moment Correlation which measures the significance of the research. A correlation of .5 or above and statistical significance of less than .05 is expected if the intervention is to be considered successful. To date, research categories have been determined and the Hypercard™ meta-analytic model designed. The next step is to perform the analysis on the first category, learning.

Meta-analysis offers a systematic way to synthesize research in this rapidly growing area of distance education. The development of a Hypercard™ database facilitates data entry and subsequent transformations. It is hoped that the resulting quantitative synthesis of research, identifying which interventions are successful, will provide international distance educators with the necessary information to assist them in developing new strategies for their own programs.

CONCLUSIONS

Although distance education, in various guises, has been serving students in the Western world for more than one hundred years, developing countries have just recently begun to adopt this form of instruction to raise the quality of education for masses of poorly educated citizens. The availability of significant research results can help guide decision makers. The underlying problems of economics, political change and social customs influence the way research is conducted and reported. Although developing countries face certain

problems in conducting research, these are not all unique. The lack of easy access to the growing body of research information in distance education is a problem which faces all countries. Meta-analysis offers a way to begin to synthesize research studies in this growing area. It is important to consider other ways of encouraging not only original research but reports of studies so that the results which are generalizeable can be made available around the world.

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